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STN	**Kryogénne nádoby. Požiadavky na húževnatosť materiálu pri nízkych teplotách. Časť 1: Teploty pod -80 °C (ISO 21028-1: 2016).**	**STN EN ISO 21028-1** 69 7252

Cryogenic vessels - Toughness requirements for materials at cryogenic temperature - Part 1: Temperatures below -80 C (ISO 21028-1:2016)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/17

Obsahuje: EN ISO 21028-1:2016, ISO 21028-1:2016

Oznámením tejto normy sa ruší
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EN ISO 21028-1

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English Version

Cryogenic vessels - Toughness requirements for materials at cryogenic temperature - Part 1: Temperatures below -80 °C (ISO 21028-1:2016)

Récipients cryogéniques - Exigences de ténacité pour les matériaux à température cryogénique - Partie 1: Températures inférieures à -80 °C (ISO 21028-1:2016)

Kryo-Behälter - Zähigkeitsanforderungen an Werkstoffe bei kryogenen Temperaturen - Teil 1: Temperaturen unter -80 °C (ISO 21028-1:2016)

This European Standard was approved by CEN on 7 August 2016.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN ISO 21028-1:2016 E

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European foreword

This document (EN ISO 21028-1:2016) has been prepared by Technical Committee ISO/TC 220 “Cryogenic vessels” in collaboration with Technical Committee CEN/TC 268 “Cryogenic vessels and specific hydrogen technologies applications” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2017, and conflicting national standards shall be withdrawn at the latest by April 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1252-1:1998.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

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Endorsement notice

The text of ISO 21028-1:2016 has been approved by CEN as EN ISO 21028-1:2016 without any modification.

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014 on the harmonization of the laws of the Member States relating to the making available on the market of pressure equipment

This European Standard has been prepared under a Commission's standardization request, M/071 Pressure Equipment, to provide one voluntary means of conforming to Essential Requirements of the New Approach Directive 2014/68/EU "Pressure Equipment Directive" of the European Parliament and of the Council of 15 May 2014.

Once this standard is cited in the Official Journal of the European Union under that Directive compliance with the normative clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014

Essential Requirements of Directive 2014/68/EU	Clause(s)/subclause(s) of this EN	Remarks/Notes
Annex I § 2.2.3 b)	Subclauses 4.1 and 4.2	Impact strength
Annex I § 7.5	Subclause 4.2	Material characteristics

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

INTERNATIONAL STANDARD

ISO 21028-1

Second edition
2016-09-15

Cryogenic vessels — Toughness requirements for materials at cryogenic temperature —

Part 1: Temperatures below -80 °C

Récipients cryogéniques — Exigences de ténacité pour les matériaux à température cryogénique —

Partie 1: Températures inférieures à -80 °C

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 220, *Cryogenic vessels*.

This second edition cancels and replaces the first edition (ISO 21028-1:2004), which has been technically revised.

ISO 21028 consists of the following parts, under the general title *Cryogenic vessels — Toughness requirements for materials at cryogenic temperature*:

— *Part 1: Temperatures below -80 °C*

— *Part 2: Temperatures between -80 °C and -20 °C*

Introduction

The use of materials at low temperatures entails special problems which are to be addressed. Consideration is to be given, in particular, to changes in mechanical characteristics, expansion and contraction phenomena and the thermal conduction of the various materials. Austenitic stainless steel can transform from the austenitic to the martensitic phase when cooled down, leading to dimensional change that needs to be considered during design.

However, the most important property to be considered is material toughness at low temperatures.

INTERNATIONAL STANDARD ISO 21028-1:2016(E)

Cryogenic vessels — Toughness requirements for materials at cryogenic temperature —

Part 1:
Temperatures below -80 °C

1 Scope

This part of ISO 21028 specifies the toughness requirements of metallic materials for use at a temperature below -80 °C to ensure their suitability for cryogenic vessels.

This part of ISO 21028 is not applicable to unalloyed steels and cast materials.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

There are no normative references in this document.